



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/689,063

10/21/2003

Jun-Ren Shih

SHIH3035/EM

3391

23364

7590

06/13/2006

BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314

EXAMINER

HOLTON, STEVEN E

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/689,063	Applicant(s) SHIH ET AL.	
	Examiner Steven E. Holton	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, lines 3 and 4 state that the driver has a "first reference current generator unit and accordingly generates a first current mirror unit". This statement seems to provide that the reference current generator generates the current mirror unit. However, the reference current generator generates currents that are transmitted to the current mirror unit (Fig. 3). The reference current generator does not generate the first current mirror unit, the first current mirror unit is already provided as a sub-circuit of the driver. Claims 2-11 are rejected because they are dependent on claim 1 and inherit the error from claim 1.

The Examiner notes that claim 12 claims similar material as claim 1 but does not possess the error pointed out in claim 1.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang (USPN: 6501449).

Regarding claims 1 and 12, the Examiner notes that the claims provide essentially identical inventions and are considered together. Huang discloses, "a first current driver (Fig. 6, element 60) having a first reference current generator unit (Fig. 6, elements 62, 641, 65, and 642) and accordingly generates a first current mirror unit (Fig. 6, element 68), wherein the first reference current generator unit generates a pre-stage reference current  $I_{ref}$  and a first reference current (Fig. 6, the current that would travel from element 642 into element 62)  $I_1$ , where  $I_1 = K_1 * I_{ref}$  and  $K_1$  is a current regulating parameter of the first reference current generator unit, and the first current mirror unit (Fig. 6, element 68) receives the first reference current  $I_1$  and accordingly generates a second reference current (Fig. 6, the current that would travel from element 60 to element 70)  $I_2 = K_2 * I_1$ , where  $K_2$  is a current copy parameter of the first current mirror unit; and at least one second current driver (Fig. 6, element 70) having a second reference current generator unit (Fig. 6, elements 72, 741, and 742) to receive the

Art Unit: 2629

second reference current  $I_2$  and accordingly generate a third reference current (Fig. 6, the current from element 742 to element 78)  $I_3 = K_3 * I_2$ , where  $K_3$  is a current regulating parameter of the second reference current generator unit and  $K_2 * K_3 = 1$ ."

Regarding the parameters of the current mirror and reference current generator unit. The Examiner notes that the current mirror circuits inherently possess some parameter value to relate the input current to the output current. Further, as described by Huang the invention is to provided to match the current being transmitted from one driver to the other using matching (col. 5, line 56 – col. 6, line 38) and that the output of the different driving ICs are matched to provide essentially the same level. Huang further discusses having the internal current values in another embodiment to be equal (col. 5, line 1) and the same matching current levels would appear to be used in the second embodiment. If all the currents are the same then the parameters have a value of 1, and therefore multiply together to equal 1 and fit all of the limitations defined in the first claim.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 2, Huang discloses, "wherein the second current driver further includes a second current mirror unit (Fig. 6, element 78) to receive the third reference

Art Unit: 2629

current (Fig. 6, the current output from element 742 to element 78) I3 and accordingly generate a fourth reference current I4 for inputting to a next current driver (Fig. 6, the output current of element 78; col. 6, lines 26-29)."

Regarding claim 3, the Examiner notes that if all the internal currents are equal as suggested by Huang with the current matching then all of the parameters would be equal to 1. Therefore, K1 and K3 would be equal to 1 and  $K1 \cdot K2$  would also be equal to 1.

Regarding claims 4 and 13, Huang discloses connecting the first driving circuit to an external resistor to produce a reference current (Fig. 6, element 65).

Regarding claims 5 and 14, Huang discloses the drivers outputting currents (Fig. 6, elements Iout1 and Iout2) to be used to drive a panel display (col. 3, lines 6-15).

Regarding claims 6 and 15, Huang disclose the reference generator unit having an operating amplifier (Fig. 6, element 62) with inputs connected to a reference voltage (Fig. 6, element Vbt) and a reference resistor (Fig. 6, element 65) and a transistor (Fig. 6, element 641). This circuit layout would produce a reference voltage along the path of element 65.

Regarding claims 7, 8, 16, and 17, Huang discloses using PMOS and NMOS transistors (col. 4, line 66 and col. 6, line 32).

Regarding claims 9 and 18, Huang discloses the current mirror unit having a plurality of transistors (Fig. 6, element 68).

Regarding claims 9, 10, 19, and 20, Huang discloses using PMOS and NMOS transistors (col. 4, line 66 and col. 6, line 32).

***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nishitoba (USPgPub: 2002/0084812) discloses a current matching driver system with cascade connected driver unit using current mirror circuits. Yamaguchi (USPN: 6332661) discloses a related driver system using a single reference current unit that generates reference currents to all drivers. Decaro et al. (USPN: 6965360) discloses a series of driver circuits providing reference currents from one driver to the next.


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton  
Division 2629  
June 5, 2006



**BIPIN SHALWALA**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600